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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
WILLIAM L. BLACK
STEVEN J. MARIAN

Serial No.: 10/649,074

Filed: August 26, 2005

For: METHOD AND APPARATUS FOR
DETERMINING A POSITION OF AN
ATTITUDE CONTROL MOTOR ON A
GUIDED MISSILE

Examiner: G. Paumen

Group Art Unit: 2833

Att'y Docket: 2063.005300

Confirmation No. 4638

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APPEAL BRIEF

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Sir:

Applicant hereby submits this Appeal Brief to the Board of Patent Appeals and Interferences in response to the decision of the Primary Examiner mailed January 19, 2006, finally rejecting claims 1-24, 27-30 and objecting claims 25 and 26. A Notice of Appeal was filed on March 16, 2006 and so this Appeal Brief is timely filed.

The fee for filing this Appeal Brief is \$500.00 and is attached hereto.

If the check is inadvertently omitted, or should any additional fees under 37 C.F.R. §§ 1.16 to 1.21 be required for any reason relating to the enclosed material, or should an

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overpayment be included herein, the Director is authorized to deduct or credit said fees from or to Williams, Morgan & Amerson's P.C. Deposit Account 50-0786/2063.005300.

I. REAL PARTY IN INTEREST

The present application is owned by Lockheed Martin Corporation. The assignment of the present application to Lockheed Martin Corporation is recorded at Reel 14443, Frame 0359.

II. RELATED APPEALS AND INTERFERENCES

Applicant is not aware of any related appeals and/or interferences that might affect the outcome of this proceeding.

III. STATUS OF THE CLAIMS

Claims 1-30 are pending in the application. Claims 1-14 and 18-24 stand provisionally rejected under 35 USC 101 as claiming the same invention as that of claims 1-11 and 13-19 of co-pending Application No. 10/679,180, referred to hereinafter as the Black '180 application. Claims 1-3, 5-6, 8, 14, 18-19, and 22-24 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Card, et al (U.S. Patent No. 5,576,698). Claims 4, 7, 15-17, and 27-30 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Card.

IV. STATUS OF AMENDMENTS

There were no amendments after the final rejections.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 sets forth an interconnect for an attitude control device. The interconnect includes at least one bus adapted to provide at least one bus signal to the attitude control device and a plurality of electrical contacts external to the attitude control device. The

electrical contacts are capable of providing a signal indicative of a physical location of the attitude control device when the attitude control device is installed.

Independent claim 18 sets forth a system for determining a position of at least one attitude control device deployed on a guided missile. The system includes at least one bus capable of transmitting at least one bus signal and a plurality of interconnects. Each interconnect is capable of receiving the bus signal from the bus and providing the bus signals to at least one attitude control device associated with the interconnect. The system also includes a plurality of electrical contacts. At least two of the plurality of electrical contacts are associated with each of the interconnects and are capable of providing a signal indicative of a physical location of the interconnect to the attitude control device associated with the interconnect when the attitude control device is installed.

Exemplary embodiments of the subject matter set forth in independent claims 1 and 18 are shown in Figures 2 and 3A-C. For example, Figure 2 shows a bus 220 that may be coupled to at least one electrical contact 215 formed on each of the flexible interconnects 210. The bus 220 may provide one or more bus signals to the electrical contact(s) 215. When installed, attitude control motors may contact the at least one electrical contact 215 and receive bus signals from the bus 220. The flexible interconnects 210 include a circuit 225 capable of providing a signal indicative of a physical location of the attitude control motor, when the attitude control motor is installed. See Patent Application, page 7, ll. 6-10.

Figures 3A-C illustrate three alternative embodiments of the circuit 225. In one embodiment, the attitude control motor shown in Figure 3A may, when installed, use the first and second electrical contacts 305, 310(1-6) to determine the physical location of the attitude control motor. For example, a reference voltage may be provided to the first electrical contact

305. The first electrical contact 305 provides the reference voltage to any of the second electrical contacts 310(1-6) to which the first electrical contact 305 is electrically coupled. In the embodiment illustrated in Figure 3A, the first electrical contact 305 is electrically coupled to second electrical contacts 310(2), 310(4), and 310(6). Thus, when the attitude control motor is installed, the circuit 225, including the plurality of electrical contacts 305, 310(1-6), may provide a signal, *i.e.*, a binary address 010101, indicative of the physical location of the attitude control motor. See Patent Application, page 9, line 18 – page 9, line 10.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Appellant respectfully requests that the Board review and overturn the three rejections present in this case. The following issues are presented on appeal in this case:

- (A) Whether claims 1-14 and 18-24 claim the same invention as that of claims 1-11 and 13-19 of the Black '180 application;
- (B) Whether claims 1-3, 5-6, 8, 14, 18-19, and 22-24 are anticipated by Card;
- (C) Whether claims 4, 7, 15-17, and 27-30 are obvious over Card.

VII. ARGUMENT

A. Legal Standards

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 USC 101 which states that "whoever invents or discovers any new and useful process may obtain a patent therefore..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*,

151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

An anticipating reference by definition must disclose every limitation of the rejected claim in the same relationship to one another as set forth in the claim. *In re Bond*, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990).

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. That is, there must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. Third, there must be a reasonable expectation of success.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. A recent Federal Circuit case emphasizes that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or

modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61 U.S.P.Q.2d 143 (Fed. Cir. 2002). Conclusory statements regarding common knowledge and common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35. Moreover, it is the claimed invention, as a whole, that must be considered for purposes of determining obviousness. A mere selection of various bits and pieces of the claimed invention from various sources of prior art does not render a claimed invention obvious, unless there is a suggestion or motivation in the prior art for the claimed invention, when considered as a whole.

B. Claims 1-14 and 18-24 do not claim the same invention as that of claims 1-11 and 13-19 of the Black '180 application.

The term "same invention," in this context, means an invention drawn to identical subject matter. (Emphasis Added) See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970). Any terminology in the preamble that limits the structure of the claimed invention must be treated as a claim limitation. The claim preamble must be read in the context of the entire claim. The determination of whether preamble recitations are structural limitations or mere statements of purpose or use "can be resolved only on review of the entirety of the [record] to gain an understanding of what the inventors actually invented and intended to encompass by the claim." See MPEP 2111.02, which cites *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257, 9 USPQ2d 1962, 1966 (Fed. Cir. 1989).

The present invention sets forth an interconnect for an attitude control device such as may be deployed on a missile, whereas claims 1-11 and 13-19 of co-pending Application No. 10/679,180 set forth an interconnect for a location dependent device, such as may be deployed on

an automobile. Applicants respectfully submit that the structure of an interconnect for an attitude control device (as set forth in claim 1-14 and 18-24) is not the same as the structure of an interconnect that may be used with any location dependent device. For example, the interconnect for the attitude control device should be able to withstand the effects of launch and/or flight, which can be quite severe. Thus, one claim is clearly broader than the other and therefore the two claims are not of the same scope.

Accordingly, a review of the entirety of the record indicates that the preamble recitations of "an interconnect for a location dependent device" and "an interconnect for an attitude control device" imply structural limitations and therefore must be treated as claim limitations. These limitations are not identical for at least the reasons discussed above and therefore Applicants respectfully submit that claims 1-14 and 18-24 do not claim the same invention as claims 1-11 and 13-19 of co-pending Application No. 10/679,180. Applicants respectfully request that the Examiner's rejections of these claims under 35 USC 101 be REVERSED.

C. Claims 1-3, 5-6, 8, 14, 18-19, and 22-24 are not anticipated by Card.

Card describes a technique for indicating an address of a module connected to a bus using a plurality of pins. See Card, Figures 3 and 4, and related discussion. Card refers to this technique as "physical addressing of modules." However, in the context of Card, "physical addressing of modules" refers to using a physical mechanism to determine a logical address. The address described by Card is a bus address and not an address indicating a physical location. Card is completely silent with regard to the physical location of the modules coupled to the bus. To the contrary, the device described by Card is only concerned with the logical address of the module and the physical location of the module is irrelevant.

In response to this argument, the Examiner alleges on page 4 of the Final Office Action that Card states that an indication is only provided when an address line from one of the modules is coupled to the bus. The Examiner then alleges that the mating connectors have to be in a certain physical location relative to one another for mating to occur and for the indication to be provided. The Examiner therefore concludes that receiving the indication that the mating connectors have mated is also an indication of the physical location of the module. Applicants respectfully disagree and submit that the Examiner has provided no evidence (or even an argument) that the modules described by Card have any particular physical relation to the mating connectors. Thus, Applicants respectfully submit that receiving the indication that the mating connectors have mated does not necessarily indicate a relative location of the modules and the mating connectors.

Furthermore, even if one accepts *arguendo* the Examiner's allegation that receiving the indication that the mating connectors have mated indicates a relative location of the modules and the mating connectors (and Applicants reiterate that this is not the case), Applicants submit that determining a relative location of the modules and the mating connectors does not determine a physical location of the module. In particular, Card teaches that the status bus is a flat ribbon connector. See Card, col. 2, ll. 46-51. Flat ribbon connectors may be almost any length and are typically flexible enough to move freely to any location within reach of the flat ribbon connector. A module coupled to the end of the flat ribbon connector may therefore also move freely to any location within reach of the flat ribbon connector. Accordingly, Applicants respectfully submit that determining a relative location of a mating connector at the end of a flat ribbon connector and a mating connector that is coupled to a module does not necessarily determine a physical location of the module.

For at least the aforementioned reasons, Applicants respectfully submit that the present invention is not anticipated by Card and request that the Examiner's rejections of claims 1-3, 5-6, 8, 14, 18-19, and 22-24 under 35 U.S.C. § 102(b) be REVERSED.

D. Claims 4, 7, 15-17, and 27-30 are not obvious over Card.

As discussed above, Card is completely silent with regard to the physical location of the modules coupled to the bus and therefore fails to teach or suggest a plurality of electrical contacts capable of providing a signal indicative of a physical location of an attitude control device when the attitude control device is installed, as set forth in independent claims 1 and 18. Thus, Applicants respectfully submit that the prior art of record fails to teach or suggest all the limitations of the claimed invention. Furthermore, Card is only concerned with determining a logical address associated with a module, as discussed above. Accordingly, Card also fails to provide any suggestion or motivation to modify the prior art directed to arrive at the claimed invention.

For at least the aforementioned reasons, Applicants respectfully submit that the Examiner has failed to make a *prima facie* case that the present invention is obvious over Card. Applicants request that the Examiner's rejections of claims 4, 7, 15-17, and 27-30 under 35 U.S.C. 103(a) be REVERSED.

VIII. CLAIMS APPENDIX

The claims that are the subject of the present appeal – claims 1-30 – are set forth in the attached “Claims Appendix.”

IX. EVIDENCE APPENDIX

There is no separate Evidence Appendix for this appeal.

X. RELATED PROCEEDINGS APPENDIX

There is no Related Proceedings Appendix for this appeal.

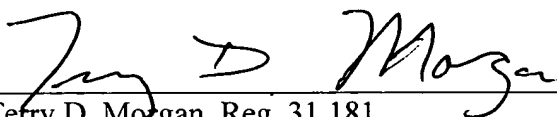
XI. CONCLUSION

In view of the foregoing, it is respectfully submitted that the Examiner erred in not allowing all claims pending in the present application, claims 1-30, over the prior art of record. The undersigned may be contacted at (713) 934-4052 with respect to any questions, comments or suggestions relating to this appeal.

Respectfully submitted,

Date:

5-1-06


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AGENT FOR APPLICANTS



CLAIMS APPENDIX

1. (Original) An interconnect for an attitude control device, comprising:
at least one bus adapted to provide at least one bus signal to the attitude control device;
and
a plurality of electrical contacts external to the attitude control device and capable of providing a signal indicative of a physical location of the attitude control device when the attitude control device is installed.
2. (Original) The interconnect of claim 1, wherein the plurality of electrical contacts includes:
a first electrical contact capable of providing a reference; and
at least one second electrical contact electrically coupled to the first electrical contact, the second electrical contact being adapted to contact a corresponding electrical contact on the attitude control device when the attitude control device is installed.
3. (Original) The interconnect of claim 2, wherein the at least one second electrical contact is a socket.
4. (Original) The interconnect of claim 2, wherein the at least one second electrical contact is a solderable electrical contact.

5. (Original) The interconnect of claim 2, wherein the first electrical contact is adapted to contact a corresponding electrical contact on the attitude control device when the attitude control device is installed.
6. (Original) The interconnect of claim 5, wherein the first electrical contact is a socket.
7. (Original) The interconnect of claim 5, wherein the first electrical contact is a solderable electrical contact.
8. (Previously Presented) The interconnect of claim 1, wherein the plurality of electrical contacts includes:
 - a first electrical contact capable of providing a reference; and
 - at least one second electrical contact optionally electrically coupled to the first electrical contact, the at least one second electrical contact being adapted to contact a corresponding electrical contact on the attitude control device when the attitude control device is installed.
9. (Original) The interconnect of claim 8, further comprising at least one fuse deployed intermediate the first electrical contact and the at least one second electrical contact such that the at least one second electrical contact is capable of being optionally electrically coupled to the first electrical contact.
10. (Original) The interconnect of claim 1, further comprising at least one circuit element deployed intermediate the first electrical contact and the at least one second electrical contact.

11. (Original) The interconnect of claim 10, wherein the at least one circuit element comprises at least one of a resistor, a capacitor, and a voltage reference circuit.
12. (Original) The interconnect of claim 10, wherein the at least one circuit element comprises a trace having a selected length.
13. (Original) The interconnect of claim 12, wherein the selected length of the trace is selected to provide a selected resistance.
14. (Original) The interconnect of claim 1, wherein the at least one bus comprises at least one trace adapted to provide at least one of a control signal, a command signal, and a power signal to the attitude control device.
15. (Original) The interconnect of claim 1, further comprising a flexible substrate.
16. (Original) The interconnect of claim 15, wherein the plurality of electrical contacts external to the attitude control device are fabricated onto the flexible substrate.
17. (Original) The interconnect of claim 15, wherein the at least one bus is fabricated onto the flexible substrate.

18. (Original) A system for determining a position of at least one attitude control device deployed on a guided missile, comprising:

at least one bus capable of transmitting at least one bus signal;

a plurality of interconnects, each being capable of receiving the bus signal from the bus and providing the bus signals to at least one attitude control device associated with the interconnect; and

a plurality of electrical contacts, at least two of the plurality of electrical contacts being associated with each of the interconnects and being capable of providing a signal indicative of a physical location of the interconnect to the attitude control device associated with the interconnect when the attitude control device is installed.

19. (Original) The system of claim 18, wherein the electrical contacts associated with each of the plurality of interconnects include:

a first electrical contact capable of providing a reference; and

at least one second electrical contact electrically coupled to the first electrical contact, the second electrical contact being adapted to contact a corresponding electrical contact on the attitude control device when the attitude control device is installed.

20. (Original) The system of claim 19, further comprising at least one circuit element deployed intermediate the first electrical contact and the at least one second electrical contact.

21. (Original) The system of claim 20, wherein the at least one circuit element comprises at least one of a resistor, a capacitor, a voltage reference circuit, and a trace having a selected length.

22. (Original) The system of claim 18, wherein the electrical contact includes:
a first electrical contact capable of providing a reference; and
at least one second electrical contact optionally electrically coupled to the first electrical contact, the second electrical contact being adapted to contact a corresponding electrical contact on the attitude control device when the attitude control device is installed.

23. (Original) The system of claim 18, wherein the at least one bus comprises at least one trace adapted to provide at least one of a control signal, a command signal, and a power signal to the at least one attitude control device.

24. (Original) The system of claim 18, further comprising a controller communicatively coupled to the bus and capable of providing the bus signal comprising at least one of a control signal, a command signal, and a power signal to the bus.

25. (Original) The system of claim 24, wherein the controller is deployed within the guided missile.

26. (Original) The system of claim 24, further comprising a transceiver coupled to the bus, and wherein the controller is deployed external to the guided missile and is communicatively coupled to the transceiver.

27. (Original) The system of claim 18, further comprising a flexible substrate having a plurality of openings formed therein.

28. (Original) The system of claim 27, wherein each of the plurality of interconnects are deployed proximate a corresponding one of the openings.

29. (Original) The system of claim 28, wherein the at least two of the plurality of electrical contacts associated with each of the interconnects is deployed proximate the corresponding one of the openings.

30. (Original) The system of claim 27, wherein the at least one bus is formed onto the flexible substrate.